GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

UNSTARRED QUESTION NO:2087
ANSWERED ON:15.03.2017
Supercomputer Weather Modelling
Hari Shri G.

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether IMD proposes to shift to a forecast system that relies on a supercomputer led dynamical weather modelling next year and if so, the details thereof;

(b) whether IMD's weather forecast has been proving wrong constantly in recent times including August, 2016 forecast;

(c) if so, the details thereof and the reasons therefor; and

(d) the steps taken/being taken by the Government in this regard?

Answer

THE MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI Y. S. CHOWDARY)

(a) Yes Madam. From the year 2017, India Meteorological Department (IMD) is planning to implement a seasonal forecasting system that relies on a supercomputer based dynamical modeling system in addition to the existing statistical model based seasonal forecasting system. Both the forecasting systems will be used to prepare the operational seasonal forecasts. It may also be added that IMD is already using dynamical forecasting system for short range and medium range forecasts using super computers.

(b-c) No Madam. It is not a fact that IMD's weather forecasts have been proving wrong constantly in recent times. IMD has been able to correctly predict several extreme weather and climate events like cyclones, deficient and excess monsoon rainfall, heat waves, heavy rainfall etc. in recent years. For example, IMD has been very successful in predicting the deficient southwest monsoon season rainfall over the country during the recent two years (2014 and 2015) and cyclone PHAILIN, HUDHUD and VARDAH during 2013, 2014 and 2016 respectively.

IMD's monthly forecast issued for rainfall of August overestimated the observed rainfall in 2016.

The forecasted and realized seasonal rainfall anomalies during the period 2010-2016 are given in Table -1. As seen in the table, the signs of the forecasted rainfall anomalies were same as that of realized rainfall anomalies in 4 years whereas the signs were different during 3 years (2011, 2013 & 2016).

Table -1
The forecasted and realized seasonal rainfall anomalies during the period 2010-2016.

Year	Actual % departure	Forecast % departure
2010	2	2
2011	2	-5
2012	-7	-4
2013	6	-2
2014	-12	-7
2015	-14	-12
2016	-3	6

(d) The present long range forecast system based on the statistical models has shown some useful skill in predicting all India seasonal rainfall including the deficient monsoon season rainfall during 2015. However, in order to overcome the limitations of the statistical models used so far, dynamical coupled ocean-atmospheric model framework has been implemented under the National Monsoon Mission. IMD is planning to use dynamical forecasting system also to prepare the monthly and seasonal forecasts.